50CO

PU/09

Serial Number: 09/807,236

CRF Processing Date: 11/6/2001
Edited by:
Verified by: _____ (STIC staf

- ☐ Changed a file from non-ASCII to ASCII
- ☐ Changed the margins in cases where the sequence text was wrapped down to the next line.
- ☐ Edited a format error in the Current Application Data section, specifically:

  _____

- ☐ Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other _____.

- ☐ Added the mandatory heading and subheadings for "Current Application Data".

- ☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.

- ☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically:

  _____

- ☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:

  _____

- ☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

  _____

- ☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.

- ☐ Inserted colons after headings/subheadings. Headings edited included: ·

- ☐ Deleted extra, invalid, headings used by an applicant, specifically:

  _____

- ☑ Deleted: ☑ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as _____

- ☐ Inserted mandatory headings, specifically: _____

- ☐ Corrected an obvious error in the response, specifically:

  _____

- ☐ Edited identifiers where upper case is used but lower case is required, or vice versa.

- ☐ Corrected an error in the Number of Sequences field, specifically:

  _____

- ☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.

- ☐ Deleted ending stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____

- ☐ Other:

  _____

  _____

  _____

Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95

```
                    RAW SEQUENCE LISTING           DATE: 11/06/2001
                    PATENT APPLICATION: US/09/807,236    TIME: 07:54:23

                    Input Set : A:\PTO.AMC.txt
                    Output Set: N:\CRF3\11062001\I807236.raw        p5
```

```
      3 <110> APPLICANT: E. I. du Pont de Nemours and Company
      5 <120> TITLE OF INVENTION: Plant Histidine Biosynthetic Enzymes
      7 <130> FILE REFERENCE: BB1255
C-->  9 <140> CURRENT APPLICATION NUMBER: US/09/807,236
C--> 10 <141> CURRENT FILING DATE: 2001-07-23
     12 <150> PRIOR APPLICATION NUMBER: 60/105,409
     13 <151> PRIOR FILING DATE: 1998-10-23
     15 <160> NUMBER OF SEQ ID NOS: 22
     17 <170> SOFTWARE: Microsoft Office 97
     19 <210> SEQ ID NO: 1
     20 <211> LENGTH: 433
     21 <212> TYPE: DNA
     22 <213> ORGANISM: Zea mays
     24 <220> FEATURE:
     25 <221> NAME/KEY: unsure
     26 <222> LOCATION: (432)
     28 <400> SEQUENCE: 1
     29 gccgcctcct cccagccacc gcgctgccgc tgtccagcgc tcctcggcca gctccccagc  60
     30 gcgcagtccc agccgccgac cagcgccccc cgcgcagtcc tagccgccgc gcagccgccg 120
     31 accagcgcat ctccggccag ctccctggcg tgcagctcct ccactagccg ccaagcacca 180
     32 ggaccacgcc atggccgtct gtctcccaaa gtatgtgttt agcgatggca agatgaacat 240
     33 tgaaaggctg acaaaacttg tcgagctggt tgggaaacag aggcttgtgc tggaccttaa 300
     34 gctgtcgaaa aaaggatggc aagatatact attgtaactg acaggtggca aaagttcagt 360
     35 gatgtgtttg tggatgaacc ggcattagaa tatctcgctg cctttcgcag attagttttt 420
     36 tggttcatgg gng                                                   433
     38 <210> SEQ ID NO: 2
     39 <211> LENGTH: 74
     40 <212> TYPE: PRT
     41 <213> ORGANISM: Zea mays
     43 <400> SEQUENCE: 2
     44 Gln Asp His Ala Met Ala Val Cys Leu Pro Lys Tyr Val Phe Ser Asp
     45   1               5                  10                  15
     47 Gly Lys Met Asn Ile Glu Arg Leu Thr Lys Leu Val Glu Leu Val Gly
     48              20                  25                  30
     50 Lys Gln Arg Leu Val Leu Asp Leu Lys Leu Ser Lys Lys Ala Arg Tyr
     51          35                  40                  45
     53 Thr Ile Val Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp
     54      50                  55                  60
     56 Glu Pro Ala Leu Glu Tyr Leu Ala Ala Phe
     57  65                  70
     59 <210> SEQ ID NO: 3
     60 <211> LENGTH: 490
     61 <212> TYPE: DNA
     62 <213> ORGANISM: Zea mays
     64 <220> FEATURE:
     65 <221> NAME/KEY: unsure
     66 <222> LOCATION: (261)
```

RAW SEQUENCE LISTING   DATE: 11/06/2001
PATENT APPLICATION: US/09/807,236   TIME: 07:54:23

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF3\11062001\I807236.raw

```
 68 <220> FEATURE:
 69 <221> NAME/KEY: unsure
 70 <222> LOCATION: (311)
 72 <220> FEATURE:
 73 <221> NAME/KEY: unsure
 74 <222> LOCATION: (413)
 76 <220> FEATURE:
 77 <221> NAME/KEY: unsure
 78 <222> LOCATION: (418)
 80 <220> FEATURE:
 81 <221> NAME/KEY: unsure
 82 <222> LOCATION: (439)
 84 <220> FEATURE:
 85 <221> NAME/KEY: unsure
 86 <222> LOCATION: (442)
 88 <220> FEATURE:
 89 <221> NAME/KEY: unsure
 90 <222> LOCATION: (488)
 92 <400> SEQUENCE: 3
 93 gctagtatgt gaattgcagg ttaggaattg atgaggaact tgtggaacta ttggggcact  60
 94 attcaccaat cccagtcact tatgctgggg gtgtgtcaac aatggacgac ctagagagga 120
 95 taaagaaagc aggcaaaagt cgggtagatg taacaattgg gagtgctcta gatatatttg 180
 96 gaggagattt gccttacaaa gatgttgtcc tttggcacag gaagcaaagt atggttggtc 240
```
W--> ` 97 aagtgtgaag aaacacaagg nattgatcag tattaccagt tcatttgatt caagcttctg 300`
W--> ` 98 cacaaagtat nttttctgaa catttttgtt caaataattc aagttaggct atctccaaca 360`
W--> ` 99 agatcctcct atctcatccc cctatttcaa acctattttg cgtcccctat ttntacanct 420`
W--> `100 acactgggag acagtcctnc antgatggtt atctcaaatc tggggagca atgaccttgc 480`
W--> `101 tttggggntt                                                    490`
```
103 <210> SEQ ID NO: 4
104 <211> LENGTH: 76
105 <212> TYPE: PRT
106 <213> ORGANISM: Zea mays
108 <400> SEQUENCE: 4
109 Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu Leu Gly His Tyr Ser
110   1               5                  10                  15
112 Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser Thr Met Asp Asp Leu
113              20                  25                  30
115 Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val Asp Val Thr Ile Gly
116           35                  40                  45
118 Ser Ala Leu Asp Ile Phe Gly Gly Asp Leu Pro Tyr Lys Asp Val Val
119        50                  55                  60
121 Leu Trp His Arg Lys Gln Ser Met Val Gly Gln Val
122 65                  70                  75
124 <210> SEQ ID NO: 5
125 <211> LENGTH: 466
126 <212> TYPE: DNA
127 <213> ORGANISM: Zea mays
129 <400> SEQUENCE: 5
130 gggttcgccg tcgcggcgcg gctacctcgc tccggctccc agctcgtccg gtccagctca  60
```

RAW SEQUENCE LISTING   DATE: 11/06/2001
PATENT APPLICATION: US/09/807,236   TIME: 07:54:23

                Input Set : A:\PTO.AMC.txt
                Output Set: N:\CRF3\11062001\I807236.raw

131 ctcgcggtcg cgaccatctc cgtccacctc atccctccgg caagcagttg ctaaactcat 120
132 ccagggtcag atcagcagct cttgccttat cccgctggct ggccgcagca ccggtggtgt 180
133 ggtggaggat ggcatcgaaa tacgtggcca gggtaccgtc tccatggtgg gcgccacaac 240
134 gtcgtttggt tggttcatgg gtttccgtct gctcggtaaa atgcggtgca ttgggaggac 300
135 ggatgttgtg tgcgctgctg ttagcttcag accatgcatc gacattcaca aggggaaagt 360
136 taagcagatt gttggttcta ctcttcggga ttcatccaat gatggcatgg aacttgtgac 420
137 aaactttgaa tcagacaaat ctcctgcaga atttgcaaaa tcatat   466
139 <210> SEQ ID NO: 6
140 <211> LENGTH: 81
141 <212> TYPE: PRT
142 <213> ORGANISM: Zea mays
144 <400> SEQUENCE: 6
145 Met Val Gly Ala Thr Thr Ser Phe Gly Trp Phe Met Gly Phe Arg Leu
146   1   5   10   15
148 Leu Gly Lys Met Arg Cys Ile Gly Arg Thr Asp Val Val Cys Ala Ala
149   20   25   30
151 Val Ser Phe Arg Pro Cys Ile Asp Ile His Lys Gly Lys Val Lys Gln
152   35   40   45
154 Ile Val Gly Ser Thr Leu Arg Asp Ser Ser Asn Asp Gly Met Glu Leu
155   50   55   60
157 Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys Ser
158   65   70   75   80
160 Tyr
163 <210> SEQ ID NO: 7
164 <211> LENGTH: 566
165 <212> TYPE: DNA
166 <213> ORGANISM: Zea mays
168 <220> FEATURE:
169 <221> NAME/KEY: unsure
170 <222> LOCATION: (326)
172 <220> FEATURE:
173 <221> NAME/KEY: unsure
174 <222> LOCATION: (340)
176 <220> FEATURE:
177 <221> NAME/KEY: unsure
178 <222> LOCATION: (383)
180 <220> FEATURE:
181 <221> NAME/KEY: unsure
182 <222> LOCATION: (398)
184 <220> FEATURE:
185 <221> NAME/KEY: unsure
186 <222> LOCATION: (418)
188 <220> FEATURE:
189 <221> NAME/KEY: unsure
190 <222> LOCATION: (437)
192 <220> FEATURE:
193 <221> NAME/KEY: unsure
194 <222> LOCATION: (443)..(444)
196 <220> FEATURE:

RAW SEQUENCE LISTING   DATE: 11/06/2001
PATENT APPLICATION: US/09/807,236   TIME: 07:54:23

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF3\11062001\I807236.raw

```
197 <221> NAME/KEY: unsure
198 <222> LOCATION: (485)
200 <220> FEATURE:
201 <221> NAME/KEY: unsure
202 <222> LOCATION: (488)
204 <220> FEATURE:
205 <221> NAME/KEY: unsure
206 <222> LOCATION: (516)
208 <220> FEATURE:
209 <221> NAME/KEY: unsure
210 <222> LOCATION: (522)
212 <220> FEATURE:
213 <221> NAME/KEY: unsure
214 <222> LOCATION: (539)
216 <220> FEATURE:
217 <221> NAME/KEY: unsure
218 <222> LOCATION: (551)
220 <400> SEQUENCE: 7
221 cgtgctggac ctcagttgtc gaaaaaagga tggccgatat accattgtaa ctgacaggtg  60
222 gcaaaagttc agtgatgtgt ttgtggatga accaacatta gaatatctcg ctgcctttgc 120
223 agatgagttt ttggttcatg gtgttgatgt ggagggcaaa aggttaggaa ttgatgagga 180
224 acttgtggaa ctattggggc actattcacc aatcccagtc acttatgctg ggggtgtgtc 240
225 aacaatggac gacctagaga ggataaagaa agcaggcaaa agtcgggtag atgtaacaat 300
W--> 226 tgggagtgct ctagatataa ttggangaga ttgccttacn aagatgttgt ccttggcacc 360
W--> 227 agggagccaa gtaatggttg ggncaagtgt gaagaachcc agggaattaa tccagtanta 420
W--> 228 cccagttcca tttgatnaaa ccnnctggac caaaagataa tttccccgaa ccaatttttg 480
W--> 229 gtccnaanaa atccaggtaa ggggaatttc ccaaanaaag anccccctaa ccccaaccnc 540
W--> 230 cccaatttcc naaaaccaaa attttc                                    566
232 <210> SEQ ID NO: 8
233 <211> LENGTH: 108
234 <212> TYPE: PRT
235 <213> ORGANISM: Zea mays
237 <400> SEQUENCE: 8
238 Val Leu Asp Leu Ser Cys Arg Lys Lys Asp Gly Arg Tyr Thr Ile Val
239   1               5                  10                  15
241 Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Thr
242              20                  25                  30
244 Leu Glu Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val
245          35                  40                  45
247 Asp Val Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu
248      50                  55                  60
250 Leu Gly His Tyr Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser
251 65                  70                  75                  80
253 Thr Met Asp Asp Leu Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val
254              85                  90                  95
256 Asp Val Thr Ile Gly Ser Ala Leu Asp Ile Ile Gly
257              100                 105
259 <210> SEQ ID NO: 9
260 <211> LENGTH: 397
```

```
261 <212> TYPE: DNA
262 <213> ORGANISM: Zea mays
264 <400> SEQUENCE: 9
265 cacaagggga aagttaagca gattgttggt tctactcttc gggattcatc caatgatggc  60
266 atggaacttg tgacaaactt tgaatcagac aaatctcctg cagaatttgc aaaatcatat 120
267 aaagaagatg aacttcttgg aggacatgtt ataatgcttg gctcagatcc tgcaagccag 180
268 gctgctgcac tcgaggcact acatgcatat cctggtggct tgcaagttgg aggtggaata 240
269 aatttgcaga atgcaatgtc ttaccttaat gaaggggcca gtcatgtgat agtgacctct 300
270 tatgtgttta gcgatggcaa gatgaacatt gaaaggctga caaaacttgt cgagctggtt 360
271 gggaaacaga gcttgtgctg gaccttagct gtcgaaa                           397
273 <210> SEQ ID NO: 10
274 <211> LENGTH: 130
275 <212> TYPE: PRT
276 <213> ORGANISM: Zea mays
278 <400> SEQUENCE: 10
279 His Lys Gly Lys Val Lys Gln Ile Val Gly Ser Thr Leu Arg Asp Ser
280  1               5                  10                  15
282 Ser Asn Asp Gly Met Glu Leu Val Thr Asn Phe Glu Ser Asp Lys Ser
283              20                  25                  30
285 Pro Ala Glu Phe Ala Lys Ser Tyr Lys Glu Asp Glu Leu Leu Gly Gly
286          35                  40                  45
288 His Val Ile Met Leu Gly Ser Asp Pro Ala Ser Gln Ala Ala Ala Leu
289      50                  55                  60
291 Glu Ala Leu His Ala Tyr Pro Gly Gly Leu Gln Val Gly Gly Gly Ile
292  65                  70                  75                  80
294 Asn Leu Gln Asn Ala Met Ser Tyr Leu Asn Glu Gly Ala Ser His Val
295              85                  90                  95
297 Ile Val Thr Ser Tyr Val Phe Ser Asp Gly Lys Met Asn Ile Glu Arg
298          100                 105                 110
300 Leu Thr Lys Leu Val Glu Leu Val Gly Lys Gln Ser Leu Cys Trp Thr
301          115                 120                 125
303 Leu Ala
304      130
306 <210> SEQ ID NO: 11
307 <211> LENGTH: 423
308 <212> TYPE: DNA
309 <213> ORGANISM: Zea mays
311 <220> FEATURE:
312 <221> NAME/KEY: unsure
313 <222> LOCATION: (1)
315 <220> FEATURE:
316 <221> NAME/KEY: unsure
317 <222> LOCATION: (4)
319 <220> FEATURE:
320 <221> NAME/KEY: unsure
321 <222> LOCATION: (28)
323 <220> FEATURE:
324 <221> NAME/KEY: unsure
325 <222> LOCATION: (75)
```

Use of n and/or Xaa has been detected in the Sequence Listing.
Review the Sequence Listing to insure a corresponding
explanation is presented in the <220> to <223> fields of
each sequence using n or Xaa.

VERIFICATION SUMMARY   DATE: 11/06/2001
PATENT APPLICATION: US/09/807,236   TIME: 07:54:24

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF3\11062001\I807236.raw**

```
L:9   M:270 C: Current Application Number differs, Replaced Application Number
L:10  M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:36  M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:36  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:97  M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:97  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:98  M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:98  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:99  M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:99  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:100 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:100 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:101 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:101 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:226 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7
L:226 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:227 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7
L:227 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:228 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7
L:228 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:229 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7
L:229 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:230 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7
L:230 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:352 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11
L:352 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:353 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11
L:353 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:356 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11
L:356 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:358 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11
L:358 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:391 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:12
L:391 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:394 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:12
L:394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:409 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:12
L:409 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:412 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:12
L:412 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:415 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:12
L:415 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:451 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:13
L:451 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:452 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:13
L:452 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:511 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:14
L:511 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14
```

VERIFICATION SUMMARY   DATE: 11/06/2001
PATENT APPLICATION: **US/09/807,236**   TIME: 07:54:24

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF3\11062001\I807236.raw**

```
L:514 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:14
L:514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14
L:585 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:585 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:586 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:586 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:612 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:612 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:615 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:615 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:624 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:624 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:682 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:20
L:682 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20
```